Two-Tier Search System: Logical Components Diagram

First Tier: A Generalized Framework	
Source/Resource API defined through pure virtual NetResource class	Manager Classes Download Manager Scan Manager Properties Manager Etc. Resource Handles Threading Classes
Tree of accessible/searchable objects built of NetResource types	

Second Tier: Specific implementations of Source/Resource API through derived NetResource classes

Derived NetResource Class 1

- Implements pure virtual functions of NetResource class
- Provides source/resource specific implementation and functionality.

Derived NetResource Class 2

- Implements pure virtual functions of NetResource class
- Provides source/resource specific implementation and functionality.

Additional Derived NetResource Classes 3 - N

Figure 1

NetResource as the embodiment of the Source/Resource API and derived NetResource classes implementing specific Query for Properties: Return properties of web search (e.g. location, • GetChildren: Return NetResource objects representing files and folders in • Search: Search through index files matching to predefined search phrase. Query for Properties: Return properties of hard disk (e.g. size of drive, Search: Pass search phrase to web search. Return NetResource Web Search NetResource (e.g. Yahoo) (Tier 2) GetChildren: Return false, web search has no children. • IsAvailable: Determine if hard drive is still accessible to user inport: Returns false, web search can not be imported Export: Returns false, web search can not be exported Local Hard Disk NetResource (Tier 2) Scan: Return false, web search can not be indexed. Perform Additional Functions: None to perform Copy: Returns false. Can not copy web search • Copy: Returns false. Can not copy a whole hard disk • Import: Returns false, Hard Disk can not be imported • Export: Returns false, Hard Disk can not be exported List Additional Functions: E.G. Format, defragment Perform Additional Functions: Perform defragment IsAvailable: Check website is accessable Scan: Index files and folders on local hard disc Open: Open web search in web browser ist Additional Functions: None to list objects representing results. • Open: Opens the hard disk root directory of hard disk space available) functionality List Additional Functions: Pure Virtual GetChildren: Pure Virtual Function Perform Additional Functions; Pure IsAvailable: Pure Virtual Function Query for Properties: Pure Virtual NetResource Base Class (Tier 1) Search: Pure Virtual Function Open: Pure Virtual Function Copy: Pure Virtual Function Scan: Pure Virtual Function Export: Virtual Function Import: Virtual Function Virtual Function Function unction Figure 2

NetResource SubTypes define portions of NetResource API

- Scan: Pure Virtual Function
 - IsAvailable: Virtual Function
 - Search: Virtual Function
- GetChildren: Virtual Function
 - Open: Virtual Function Copy: Virtual Function

NetResource Base Class

- Export: Virtual Function Import: Virtual Function
- Query for Properties: Virtual Function
- List Additional Functions: Virtual Function
- Perform Additional Functions: Virtual Function

Virtual NetResource (defined functions listed)

- Search
- **Query for Properties** GetChildren
- List Additional Functions
- Perform Additional Functions
- Resource NetResource (defined functions listed)
 - Open
- Copy
- Import
- Export
- List Additional Functions Query for Properties
- Perform Additional Functions
- Figure 3

Container NetResource (defined functions listed)

- Is Available
- <u>Search</u> GetChildren
- Open
 - Copy
- Import
- Export
- **Ouery for Properties**
- List Additional Functions

Perform Additional Functions





